

# Prevalence and Pattern of Congenital Anomalies and Its Outcome at Chattagram Maa-O-Shishu General Hospital

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## Abstract

**Background:** Congenital anomalies are a major cause of perinatal and neonatal deaths, both in low and high-income countries. The aim of the study is to find out the overall incidence of clinically detectable Congenital anomalies in newborns in Chattagram Maa-O-Shishu General Hospital (CMOSH). **Methods:** A retrospective study was carried out from July 2010 to June 2011 to find out the incidence of congenital anomalies & its outcome at Chattagram Maa-O-Shishu General Hospital. **Results:** The total number of admission during this period was 2395 and total number of death was 141, out of which Congenital anomalies were 105. Among the Congenital anomalies, congenital heart disease was 62, Club foot was 9, Down syndrome was 8, Hydrocephalus was 5, Cleft lip & cleft palate was 5, Umbilical hernia was 4, Duodenal atresia was 3, Tongue tie was 3, Pierre robin syndrome was 3, Hisprung disease was 2 and Mermaid syndrome was 1. **Conclusion:** Heart defects were the most prevalent anomaly detected. Early prenatal diagnosis is therefore very helpful in decreasing perinatal mortality by allowing for the option of early termination of pregnancy.

**Key words:** Congenital Anomaly; Neonate; WHO.

## INTRODUCTION

A congenital anomaly is a condition which is present at the time of birth which varies from the standard presentation. In 2004, WHO estimates that about 260 000 deaths worldwide were caused by congenital anomalies<sup>1</sup>. It is almost 7% of all neonatal deaths.

It is estimated that 94% of serious birth defects occur in middle and low-income countries, where mothers are more susceptible to macro and micronutrient malnutrition and have increased exposure to perinatal infection. Advanced maternal age also increases the risk of chromosomal abnormalities such as Down syndrome<sup>2-7</sup>. Congenital anomalies are having a huge impact in contributing to Neonatal and infant mortality and morbidity, developed nations have devised a precise observation system to discover the prevalence of Congenital anomalies for the development of effective preventive systems<sup>8</sup>.

Every 4.5 minutes, a baby is born with a birth defect<sup>9</sup>. Although the worldwide incidence of birth defects is estimated at 3-7%, the rate varies widely between countries<sup>10</sup>. It is reported to be 1.07% in Japan, 1.49% in South Africa, 2% in England, 2-3% in USA and 4.3% in Taiwan. In India, the overall incidence of birth defects ranges from 0.3% to 3.6%<sup>11</sup>. WHO is working with the US Centers for Disease Control and Prevention's (CDC) National Center on Birth Defects and Developmental Disabilities and other partners for the prevention of birth defects.

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Prevalent studies of congenital anomalies are useful to establish baseline rates, to document changes over time and to identify clues to etiology. They are also important for health services planning and evaluating antenatal screening in populations with high risk. The study is also important as it may help to raise the awareness of surgical pediatric intervention and to emphasize the loss of babies with congenital abnormalities<sup>12</sup>.

Congenital anomalies have a significant role in morbidity and mortality of children<sup>13</sup>. As the management and rehabilitation of these children with congenital abnormality is very costly, it is imperative to identify causative and risk factors and prevent them early where possible<sup>14</sup>.

There are currently no sound estimates of the number of children born with a serious congenital disorder attributable to genetic or environmental causes. Our aim was to discover the frequency of various and common congenital abnormalities in neonates admitted at CMOSH Chittagong, Bangladesh.

**MATERIALS AND METHODS**

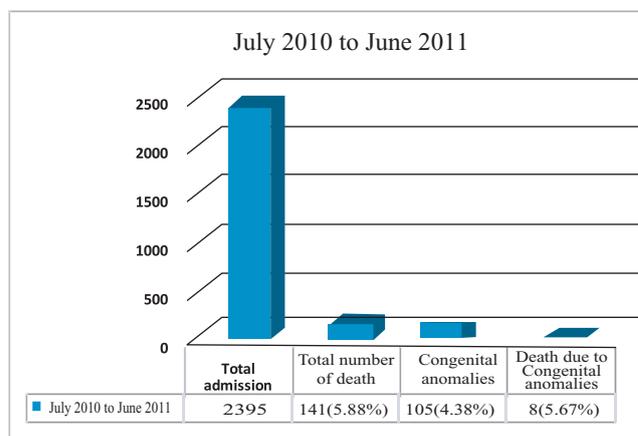
A retrospective study was conducted to evaluate the incidence of congenital abnormalities among neonates, at the Neonatology Department of CMOSH, Chittagong, Bangladesh from July 2010 to June 2011. In our study, we included all those infants who were diagnosed with at least one birth defect. Information regarding patients was obtained from patient records at the beginning of the study.

**RESULTS**

The total number of admission during this period was 2395 and total number of death was 141 (5.88%) out of which Congenital anomalies was 105 (4.38%). Death due to congenital anomalies was 8(5.67%) (Figure 1).

Among the Congenital anomalies, congenital heart disease was 62(59.04%) Club foot was 9(8.57%) Down syndrome was 8(7.61%) Hydrocephalus was 5(4.76%) Cleft lip & cleft palate was 5(4.76%) Umbilical hernia was 4(3.81%) Duodenal atresia was 3(2.86%) Tongue tie was 3(2.86%) Pierre robin syndrome was 3(2.86%) Hirschsprung disease was 2(1.90%) and Mermaid syndrome was 1(1%) (Table 1).

Among the 105 patients, 80 patients was discharged for further follow up, 17 patients were referred to higher centre and 8 patients died (Table 2). Among them death due to congenital heart disease was 5(62.50%) Mermaid syndrome 1(12.50%) Duodenal atresia 1(12.50%) and Hydrocephalus 1(12.50%) (Table 3).



**Figure 1:** Percentage of Congenital anomalies among study population.

**Table 1:** Distribution of various congenital anomalies.

Total Admission: 105	Total no of patients	Male	Female	Percentage
Total Congenital Heart disease	62	42	20	59.04%
Club foot	9	4	5	8.57%
Down syndrome	8	5	3	7.61%
Hydrocephalus	5	3	2	4.76%
Cleft lip & cleft palate	5	2	3	4.76%
Umbilical hernia	4	3	1	3.81%
Duodenal atresia	3	2	1	2.86%
Tongue Tie	3	2	1	2.86%
Pierre robin syndrome	3	3	0	2.86%
Hirschsprung disease	2	2	0	1.90%
Mermaid syndrome	1	1	0	1.00%
<b>Total</b>	<b>105</b>	<b>69</b>	<b>36</b>	<b>100%</b>

**Table 2:** Outcome of various congenital anomalies (Pie chart).

Description	Number of patients
Discharged for further follow up	80
Referred to higher centre	17
Number of death	8
<b>Total</b>	<b>105</b>

**Table 3:** Distribution of death among congenital anomalies.

Diseases	Number of death (%)
Congenital heart disease	5(62.50%)
Mermaid syndrome	1(12.50%)
Duodenal atresia	1(12.50%)
Hydrocephalus	1(12.50%)
<b>Total</b>	<b>8 (100%)</b>

## DISCUSSION

Congenital anomalies are important causes of fetal deaths, thus it becomes mandatory to determine the incidence and prevalence of congenital abnormalities in society. The present study demonstrated the hospital admission of neonate due to congenital anomalies and mortality of neonate related to it in a tertiary care hospital of Chittagong district, Bangladesh.

In the present study, Congenital heart disease was commonest. 62(59.04%) of congenital anomalies were due to heart defect. Among others Club foot was 9(8.57%) Down syndrome was 8(7.61%) Hydrocephalus was 5(4.76%) Cleft lip & cleft palate was 5(4.76%) Umbilical hernia was 4(3.81%) Duodenal atresia was 3(2.86%) Tongue tie was 3(2.86%) Pierre robin syndrome was 3(2.86%) Hisprung disease was 2(1.90%) and Mermaid syndrome was 1(1%). Total death with Congenital anomalies was 8 (5.67%).

A study conducted by Banu T et al 2014 revealed that 44.61% of all pediatric surgical admission due to birth defect and 51.49% pediatric death due to birth defect observed in their study period<sup>14</sup>. The most common cause of death was anorectal malformation followed by gastroenteritis.

In the present study, males were more commonly affected than females. Congenital malformations that exist more commonly in males have also been reported in other studies<sup>14</sup>.

Herbert A Obu et al (2012) study revealed that, surgical birth defects are common Congenital anomalies (2.8%) which comprised of neural tube defect, ano-rectal malformations, cleft lip/cleft palate, limb abnormalities, omphalocele, umbilical hernia, and dysmorphism accompanying with various Congenital anomalies<sup>15</sup>. This findings is similar to our study.

A hospital-based study conducted in India stated that 1.91% of neonate born with congenital anomalies<sup>16</sup>. A frequency of congenital anomalies at 29.4/1000 live births reported in another study conducted in Iran<sup>17</sup>. This is also similar with our study; here the incidence of congenital abnormalities are 4.38%. This finding is also similar to the findings of Naderi et al. and Asindi et al<sup>18-19</sup>.

Central Nervous system anomalies is the most common Congenital anomalies (58.06%) were revealed by Khan et al study<sup>20</sup>. Among them hydrocephalus, anencephaly and meningomyelocele are predominant. Few congenital anomalies of hydrocephalus were found in our study.

## CONCLUSION

Since this study was a cross-sectional, retrospective study, the results may not be expected to the entire population. Nevertheless, these results emphasize an important public health issue and present a baseline for other well-designed studies. Heart defects were the most prevalent anomaly detected. Early prenatal diagnosis is therefore very helpful in decreasing perinatal mortality by allowing for the option of early termination of pregnancy. This study contributes to determine the frequency of congenital anomalies at CMOSH, Chittagong. Further studies are required to evaluate interventions that may be oriented to eliminate risk factors and reduce the incidence of congenital anomalies.

## DISCLOSURE

All the authors declared no competing interest.

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